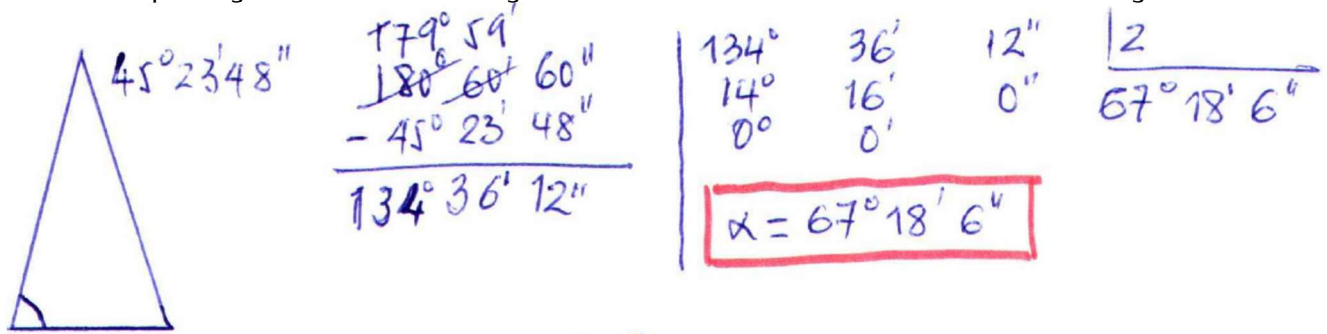
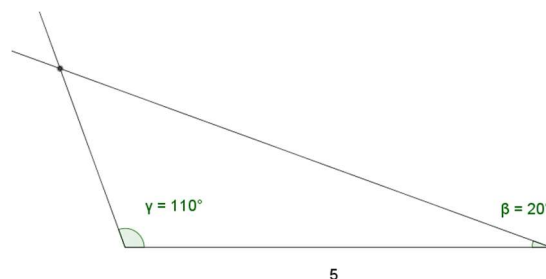


Lessons 10 to 12 . Plane geometry

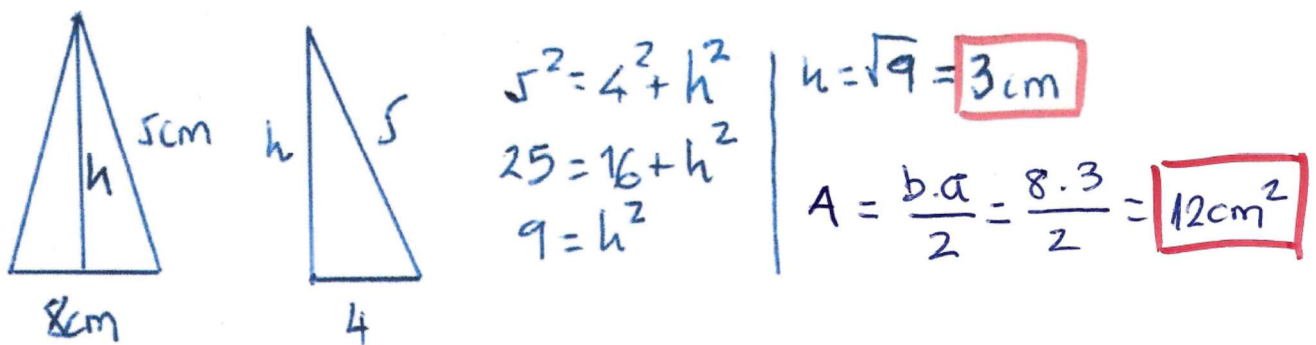
1. The unequal angle of an isosceles triangle is $45^\circ 23' 48''$. What are the values of the other angles?



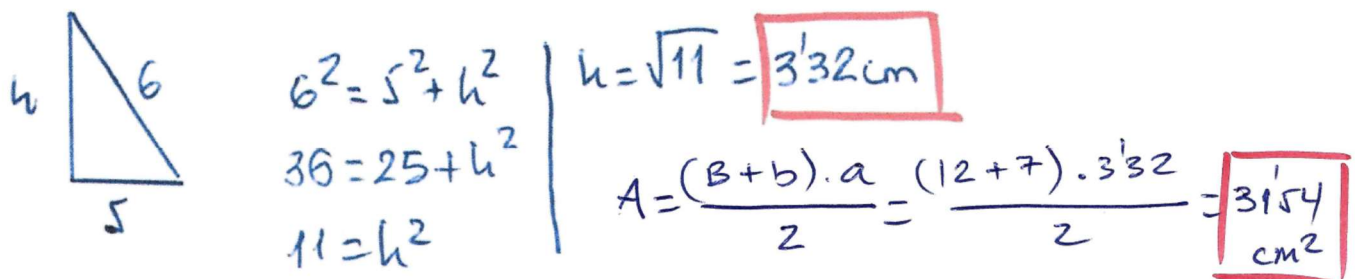
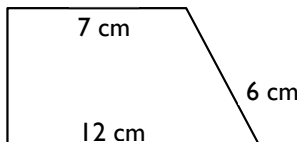
2. Draw a triangle with the following data: $A = 110^\circ$, $B = 20^\circ$ and $c = 5$ cm
What kind of triangle is it according to its angles and to its sides?



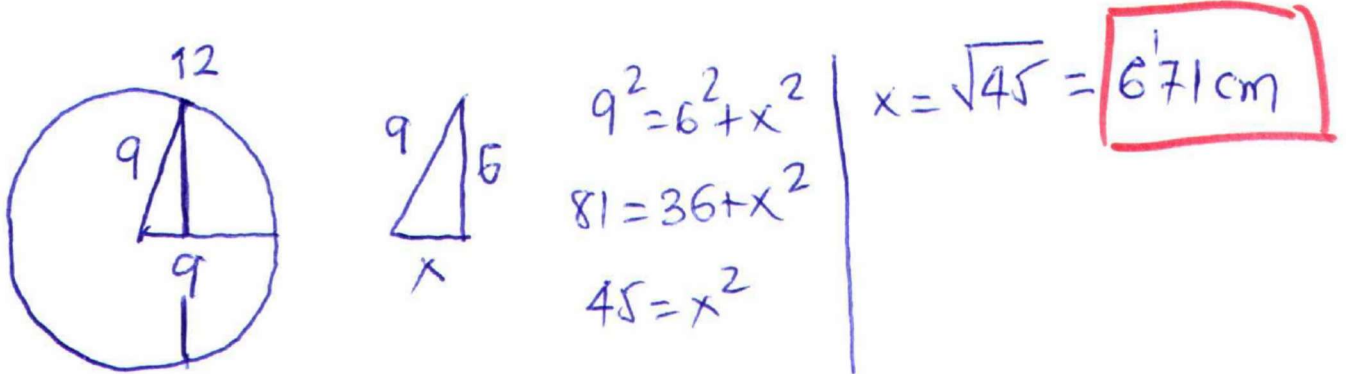
3. Calculate the area of an isosceles triangle whose base is 8 cm and the equal sides are 5 cm.



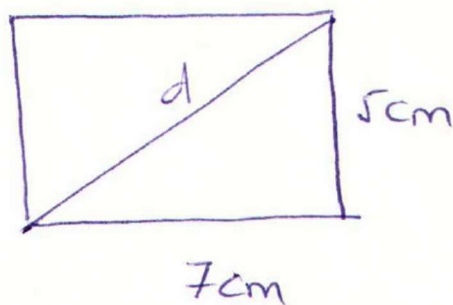
4. Calculate the area of the next right-angled trapezium whose bases are 7 cm and 12 cm and the other side is 6 cm.



5. A circumference with a radius of 9 cm has a chord 12 cm long. How far is it from the centre of the circumference?



6. What is the diagonal of a rectangle whose sides are 7 cm and 5 cm?

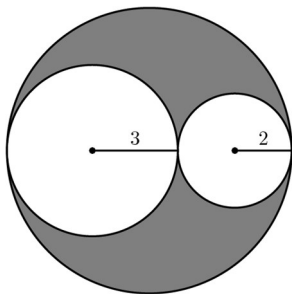


$$d^2 = 7^2 + 5^2$$

$$d^2 = 49 + 25 = 74$$

$$d = \sqrt{74} = 8.60 \text{ cm}$$

7. Calculate the perimeter and the area of the shaded surface. The radius in the picture are 2m and 3m respectively.



$$p = 2 \cdot \pi \cdot 5 + 2 \cdot \pi \cdot 3 + 2 \cdot \pi \cdot 2 = 20 \cdot \pi = 62.83 \text{ m}$$

$$A = \pi \cdot 5^2 - \pi \cdot 3^2 - \pi \cdot 2^2 =$$

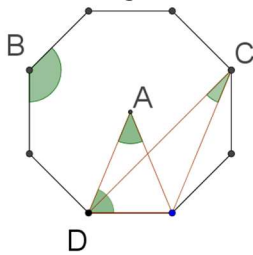
$$= 25\pi - 9\pi - 4\pi = 12 \cdot \pi = 37.70 \text{ m}^2$$

8. Calculate the length of an arc of circumference whose radius is 5.3 m and its angle is 63° in amplitude. Calculate the area of the circular sector formed by them.

$$l = \frac{2 \cdot \pi \cdot R \cdot n^\circ}{360} = \frac{2 \pi \cdot 5.3 \cdot 63}{360} = \boxed{5.83 \text{ m}}$$

$$A = \frac{\pi \cdot R^2 \cdot n^\circ}{360} = \frac{\pi \cdot 5.3^2 \cdot 63}{360} = \boxed{15.44 \text{ m}^2}$$

9. Find the angles A, B, C and D by reasoning. Write all the operations you do to get the results.



$$\hat{A} = 360 : 8 = \underline{45^\circ}$$

$$\hat{B} = (180 - 45) : 2 = \underline{67.5^\circ}$$

$$\hat{C} = \hat{A} : 2 = 45 : 2 = \underline{22.5^\circ}$$

$$\hat{D} = 180 - \hat{A} = 180 - 45 = \underline{135^\circ}$$